

National Seminar on Moisture Sensitivity in Asphalt Pavements



Breakout Session No. 2 Testing and Treatments



Testing

- If good mix design, pavement design, and construction practices are followed, is a moisture sensitivity test required?



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Testing

- Current Practices
 - AASHTO T 283-02
 - Hamburg Wheel Tracking Device
 - Loose Mix



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Assumptions

- Well designed / produced mix
- Considering short term initially
- Test that can be used for design and production control



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AASHTO T 283-02

- Issues to address
 - Consolidate successful modifications
 - Reproducibility/Repeatability crucial to insure success (Colorado experience)
 - Specimen preparation
 - compaction method
 - degree of saturation



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AASHTO T 283-02

- More Issues to address
 - Air voids determination
 - Calibrate for local conditions
 - Disadvantage: no repeated load
 - Porosity / permeability
 - Standardization of training / certification



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Hamburg Wheel Tracking Device

- Benefit: includes repeated loading
- Can identify stripping failure by transport of fines from mix into water



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Hamburg Wheel Tracking Device

- Issues to address
 - Test conditions appropriate to environmental and mix characteristics
 - Sample preparation and compaction
 - Equipment improvements (where rut measured)



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Hamburg Wheel Tracking Device

- More Issues to address
 - No standard procedure
 - No precision / bias
 - Repeatability / reproducibility



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Loose Mix

- Consider for screening test (qualitative)
- Potential tests
 - Static boiling
 - Rolling bottle
 - Ultrasonic



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Gaps

- Criteria / protocols for local calibration
 - Data collection that relates to field performance
 - Test correlation with failure mode
 - Define field performance with respect to moisture sensitivity



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Research Needs

- Fundamental property tests
- Long-term aging
- Rapid QC test
- Completion of ECS research
 - Dynamic modulus / fundamental properties (AASHTO 200X)
 - Traffic impacts on pore pressures
 - pH of water



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Treatments

■ Best Practices

- Account for additives in mix design
 - Perform mix design with all additives
- Application of lime: dry on damp
 - Coated aggregates
 - Acceptance based on production data
 - Method specification



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Treatments

■ Best Practices

- Certification of correct product / product quality / amount used
- Test binder with additives to ensure they meet specifications



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Treatments

■ Gaps

- Verify quantity of additive in mix
 - Lime test method
- Field performance of various additives over time
- Compatibility of additives with bitumen, polymers, etc
 - Positive
 - Negative



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Treatments

■ Research Needs

- Field test to determine uniform distribution of additive in mix
- Field performance of additives over time
- Aggregate stockpile aging
- Lime in bitumen
- Diminished properties over time?

